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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,817	11/09/2001	James J. Harrison	T-5565	6837

7590 09/28/2004
Linda A. Stokley
Chevron Texaco Corporation
P.O. Box 6006
San Ramon, CA 94583-0806

EXAMINER

MCAVOY, ELLEN M

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 09/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/006,817

Applicant(s)

HARRISON ET AL.

Examiner

Ellen M McAvoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 26-50 are still rejected under 35 U.S.C. 103(a) as being unpatentable over Harrison et al (6,358,892) or Harrison et al (5,853,434).

Applicants' arguments filed 2 July 2004 have been fully considered but they are not persuasive. As set forth in the previous office action, the Harrison et al ["Harrison"] references disclose compositions comprising polyalkylene polysuccinimides, and post-treated derivatives thereof, which act as dispersants in lubricating oils and as deposit inhibitors in hydrocarbon fuels. The polyalkylene compositions can be prepared by reacting a mixture of an alkenyl or alkylsuccinic acid derivative, an unsaturated acidic reagent copolymer, and a polyamine under reactive conditions. See formula (I) set forth in column 6, lines 15-42, of ('892) and column 4, lines 8-30 of ('434). The alkenyl or alkyl substituent, R, of the alkenyl or alkylsuccinic acid derivative has a Mn of from 1800 to 3000. The unsaturated acidic reagent copolymer has an average degree of polymerization, x, of from 2 to 20, and is a copolymer of an unsaturated acidic reagent and an olefin wherein R¹ is an alkyl having an average of from 12 to 28 carbon atoms. The polyamine has at least three nitrogen atoms and has from 4 to 20 carbon atoms. The examiner maintains the position that the polyalkylene polysuccinimide set forth in the Harrison references appear to meet the limitations of the polymers in applicants' independent claim 26 and

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the process for preparing the polymers in independent claims 35 and 37. The only difference appears to be substituent R_1 which is methyl in applicants' claims and hydrogen in Harrison. The examiner is of the position that this is an obvious variance which is not expected to effect the properties of the polysuccinimide compound. Harrison teaches that the polysuccinimide compound may be post-treated by reaction with a cyclic carbonate, a boron compound such as boric acid, and other compounds inorganic phosphorous acids. See column 13, line 40 to col. 16, line 35; of ('892). Thus the examiner maintains the position that the Harrison references meet the limitations of the above rejected claims.

Applicants argue that the important difference between the Harrison references and the present invention lies in the composition of the copolymer used to make the polymeric succinimides. Applicants argue that the polymeric succinimides in the Harrison references are made from polyisobutenyl succinic anhydride, a copolymer of an *alpha olefin* and maleic anhydride and an amine, which differs from applicants' polymeric succinimides which are made from polyisobutenyl succinic anhydride, *low molecular weight polyisobutene* and maleic anhydride and an amine. This is not deemed to be persuasive because the alpha olefin having 12 to 28 carbon atoms of Harrison is seen to be indistinguishable from the polyisobutylene having less than 32 carbon atoms in applicants' invention. Polyisobutylene is an example of an alpha olefin. Indeed, Harrison teaches in column 12, lines 25-28 of ('892) that poly(isobutene-co-maleic anhydride) resins are an example of maleic anhydride α -olefin copolymers which may be used to prepare the polymeric succinimides of the patented invention.

Claim Rejections - 35 USC § 103

Claims 1-25 are still rejected under 35 U.S.C. 103(a) as being unpatentable over Ruhe, Jr. et al (5,175,225).

Applicants' arguments filed 2 July 2004 have been fully considered but they are not persuasive. As set forth in the previous office action, Ruhe, Jr. discloses oligomeric copolymers having alternating succinic and polyalkylene groups which may be used as intermediates for dispersants or as dispersants themselves in lubricating oil compositions. Ruhe, Jr. also discloses a process for preparing the oligomeric copolymers. The copolymers are set forth in column 6, lines 45-53, wherein W' and Z' are independently selected from -OH, -O-lower alkyl or taken together are -O- to form a succinic anhydride group, and the R substituents may be hydrogen, lower alkyl groups of 1 to 6 carbon atoms, and higher alkyl groups of at least about 30 carbon atoms. The examiner maintains the position that the oligomeric copolymer of Ruhe, Jr. meets the limitations of the copolymers of independent claims 1 and 14 when n is 1 and m is 1.

Applicants argue that the major difference between the preparation of the oligomeric copolymer in Ruhe, Jr. and the preparation of the copolymers of the present invention is that in Ruhe, Jr. the copolymers are prepared using high molecular weight olefins such as polyisobutenes having an average molecular weight of about 500 to about 5,000. In contrast, applicants' argue, the copolymers in the present invention are prepared using low molecular weight polyisobutene having a molecular weight of about 448 or less. This is not deemed to be persuasive of patentability of the claims at issue because there is still an overlap in the claimed invention of a polyisobutylene having less than 32 carbon atoms and Ruhe Jr. which teaches a

polyisobutyl having at least about 30 carbon atoms for the same component. See column 5, lines 13-14. Although Ruhe Jr. prefers a higher carbon atom chain, preferably at least about 50 carbon atoms, at least 30 carbon atoms is taught as suitable for this component. Thus, the examiner maintains the position that the oligomeric copolymer of Ruhe, Jr. meets the limitations of the copolymers of independent claims 1 and 14 when n is 1 and m is 1.

THIS ACTION IS MADE FINAL. Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

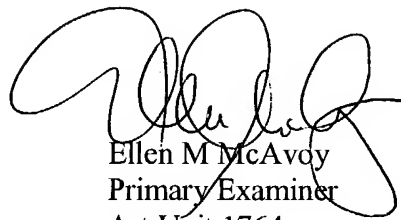
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ellen M McAvoy whose telephone number is (571) 272-1451. The examiner can normally be reached on M-F (7:30-5:00) with alt. Fridays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ellen M McAvoy
Primary Examiner
Art Unit 1764

EMcAvoy
September 27, 2004